Digital Innovation Ecosystem Development for Financial Inclusion and Market Access: The Case of Tanzania

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Digital Innovation Ecosystem Development for Financial Inclusion and Market Access: The Case of Tanzania

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Abstract

There is now consensus that innovative financial services that are provided in a more equitable and inclusive way are the cornerstone of social and economic development. In this regard, although Tanzania has recorded a significant growth in the level of financial service provision and has reached out to a good number of people in the country, especially through digital means, the country might not benefit from this wide coverage of financial services because it faces a glaring gap in inclusiveness. The reasons for the persistence of such exclusion – in spite of policies to address the challenges – are not clearly known. This work is an attempt to close this knowledge gap – basically towards understanding the factors contributing to both gender and location-related exclusion with the purpose to inform inclusion policies. The findings indicate that the major challenges revolve around inappropriate marketing strategies for the digital financial services for the poor; inappropriate products in terms of price and context fitness; and cost related to product development and service provision on the part of the providers. The existing inclusion policies did not seem to have helped much as they have some serious gaps in their design.

Keywords: *Digital financial services; Innovation ecosystem; Financial inclusion; Market development*

1. Introduction

Background

Financial services are the cornerstone of social and economic development of countries. Many scholars who interrogated the relationship between financial services and development found a positive relationship between the two. Pranathi et al. (2022) mentions a number of them, including Bilan et al., 2019; Sutton and Jenkins, 2007; and Patrick (1966). According to Sutton and Jenkins (2007), in a modernized democracy, economic growth is dependent on an effective financial sector that aggregates domestic savings and mobilizes foreign capital for productive investments. Bilan et al. (2019), on their part, while purporting that the financial system is critical to a nation's economic success, argue that financial systems finance companies and enterprises, resulting in more employment and, as a result, increased economic activities and domestic commerce and growth of the economy.

The positive impact of financial services will only be felt if this service is provided in a more equitable way by including the normally underserved and the poor. According to Ibrahim (2007), financial services assist the poor in reducing vulnerability and managing their assets in ways that produce income and possibilities, and thereby giving an opportunity to everybody in a country to contribute and benefit from the national cake. However, traditionally, many financial services organizations have given little consideration to the poor, since they have few assets that can contribute to profitability of firms providing such services. Casualness, lack of knowledge, inadequate infrastructure, and other impediments have strengthened the perception that very little can be gained by extending financial services to the poor, let alone them being generators of innovation (Adelakun, 2010). However, with the advent of new technologies, especially digital technologies, such perceptions are fading. By using electronic gadgets such as computers, laptops, tablets or mobile phones, people (including the poor) can be able to access all financial services such as payment of bills, money transfers, online shopping and so much more with little cost in terms of money and time and, most importantly, in a most inclusive way. For instance, through digital means, the bank does not require physical existence, and can therefore reach out to those areas where physical banks are non-existent.

Previously, before the emergence of Digital Financial Services (DFS), it was taking longer, or even impossible, for someone to send money from one place to another, for

example from urban areas to families in rural areas, because the available mechanism was sending cash by using a close friend who is travelling from the city to the village or using buses that take more than ten hours or more, depending on the locality. These options were too costly, security was poor and caused inconveniences. With mobile money and mobile banking, it is now possible to receive and send money instantly and securely across the country, and a good number of people in the country are now enjoying such financial services. According to the National Financial Inclusion Framework, the level of usage of informal financial services narrowed from 29% to 7%, while the percentage of the adult population using formal financial services has quadrupled in the same period (NFIF, 2018-2022). It is also estimated that DFS in Tanzania have increased to 65% as of 2017 (BOT, 2019-2020). Along with this increase, the country's second Five Year Development Plan (FYDP II) places great emphasis on digital technologies that include DFS and, as a result, Tanzania, a country of over 60 million people, is now enjoying tremendous growth in DFS. According to the Bank of Tanzania's (BOT) Mobile Transactions Data, 2019, almost half of the 60 million (43%) of the Tanzanian population actively used mobile services in 2019 (BOT, 2020). Various DFS organizations and partners such as Financial Sector Deepening Trust (FSDT) have been key drivers in the evolution of digital financial services in Tanzania. They did so by strengthening the DFS ecosystem, mapping demand and supply of financial services and therefore enabling product development. They also facilitate collaboration between principal players, including government, central bank, financial service providers (FSPs), financial technology innovators and mobile network operators (MNOs). Such partners also drive innovative policy by working with regulators to create a supportive regulatory environment for mobile financial services and agency banking (Ephraim and Mhina, 2017).

The above improvement of DFS coverage countrywide notwithstanding, there are glaring inclusion gaps, such as those associated with gender, social and economic status, and geographical location. For instance, while the World Bank (2018) reports a 9% gap between women and men in access to financial services worldwide, for Tanzania women exclusion stood at 39.3%, and those of men is 29.9% (FinScope, 2017). Additionally, this exclusion is also seen in terms of location where 43.3% of rural population was excluded from formal financial services, and only 18.4% of urban were excluded (FinScope, 2017).

Problem definition

While there are number of studies (see for instance BOT, 2022) making reference to financial inclusion in Tanzania, to our knowledge, none is specifically targeting the normally excluded in its design. Such studies make reference to inclusion in terms of achieving general wider coverage of the population in financial services by, for instance, lowering the cost of access. While cost can be an important impediment to reaching out to the underserved and the poor, there could be many other reasons. Because development aspiration for Tanzania is to eradicate all sorts of exclusion in development, researchers have more work to do to produce evidence for policy that will completely eradicate exclusion in provision of financial services. This work is a modest attempt towards this direction; it explicitly focuses on the underserved in its design, specifically towards understanding the factors contributing to both gender and location (urban versus rural) related exclusion in financial services.

Study objectives and guiding questions

Using the inclusive innovation (digital) ecosystem approach, this study is set to identify sources of exclusion in the Tanzanian digital financial services, with policy objective to address the whole issue of exclusion in the delivery of financial services. Specifically, the aim of the study is to:

i) Assess the appropriateness of the marketing strategies of the digital financial service providers for the underserved and the poor.

ii) Assess the appropriateness of the financial products for the underserved.

iii) Assess the adequacy of the infrastructure for financial services for the underserved and the poor.

iv) Assess the relevance of existing policies and regulatory environment for inclusion in the provision of financial services.

The study will be guided by the following broad research questions:

i) To what extent are the marketing strategies for digital financial products appropriate for the underserved and the poor?

ii) To what extent are the current digital financial products appropriate for the needs of the underserved and the poor?

iii) How sufficient is the infrastructure for providing financial services to the underserved and the poor?

iv) To what extent are the current policies and regulatory environment relevant for inclusion for the provision of financial services?

2. Theoretical and conceptual framework

Introduction

The major objective of this section is to provide a conceptual glance through which the objectives of the work can be achieved. It attempts to bring together the concepts of innovation system and that of DFS with the objective of bringing dynamism, innovativeness and context sensitivity to the otherwise seemingly static and context neutral concept of DFS ecosystem. The section starts by discussing the concept of innovation more generally as a systemic endeavor and on factors that trigger innovation where markets (demand) take an upper hand. The issue of inclusion or exclusion in financial services is a demand/market issue, specifically focusing on the normally underserved and the poor.

We use the concept of inclusive innovation systems (to be defined later) while dealing with demand/markets/needs for the underserved rather than popular concepts such as the Mobile Money for the Poor (MM4P) and Market Systems for the Poor (M4P) that are more common in discourse around the digital financial services for the poor. There are two reasons for this; first, it is because provision of financial services is a systemic and innovative endeavor. It takes a system of actors to provide financial services products that are continuously being adapted to the needs of the people under changing social and economic contexts. Second, MM4P and M4P are both part of the inclusive innovation system, which is much broader and richer in conceptualizing all the aspects of the DFS for the poor; for instance, inbuilt in the concept of innovation is dynamism and context specificity. Innovation changes as social and economic contexts change and thereby accommodating thinking around how to continuously adjust financial products to the environment of the poor. In addition, the concept of innovation does not only relate to the newness/improvement of the products to fit the needs of the poor, but also new ways to market the same product and adapting (innovating) the business models (organizational innovation) to efficiently reach out to the normally underserved and the poor with the same product.

The importance of using inclusive innovation system as a conceptual framework as against the concepts of MM4P and M4P is further confirmed by the mid-term review of the MM4P programme, which proposed that there is a need to include the role of innovation as a potential workstream in the programme. Specifically, the programme proposed that MM4P will have to incorporate innovation into its

workstream as DFS markets develop and new types of providers emerge (UNCDF, 2018), thereby instilling some dynamism in the concept, just like innovation system. Moreover, MM4P is not a conceptual framework in itself, but a programme that uses M4P in its implementation. It is a programme designed by the UNCDF in partnership with AusAID to focus on the poorer countries where the commercial business case may be marginal, but the needs of the population are great. The mission of MM4P is to help develop and implement mobile money solutions that reach low-income households and microenterprises least developed countries, giving them access to affordable, safe means to manage money, increasing their financial security, and to demonstrate how such services can be scaled up or replicated sustainably in very low-income countries. According to the UNCDF (2018), the programme used M4P conceptual framework in its implementation. Market systems is defined as a dynamic space incorporating resources, roles, relationships, rules and results in which private and public actors collaborate, coordinate and compete for the production, distribution and consumption of goods and services (USAID, 2014). As it can clearly be depicted from the next section (2.2), the concept of market systems is very similar to the concept of innovation system, whereby the output of innovative market systems is innovation, further confirming that an inclusive innovation system is a better conceptual tool to look deeper into the issues of exclusion in the digital financial services provision.

We therefore conclude that the concept of inclusive innovation system is the appropriate one to address the needs of the underserved. However, in implementation, the approach will be narrowed to a particular innovation system – digital innovation ecosystem.

In the following section we discuss the two concepts.

Innovation and digital innovation ecosystems

Innovation defined

Before we dwell on the concepts of innovation ecosystem, and digital innovation ecosystem, which is a major subject of our inquiry, it is important to put the concept of innovation and its drivers in the proper context, which is very important in devising strategies to reach out to the poor. There is now a general consensus world over that innovation is a major driving force behind economic growth and ever-growing welfare of communities throughout the world. Innovation improves companies' competitive edge, thereby leading to growth of countries and provides employment for the masses; it helps in addressing social and economic challenges facing different communities in a country. Shortly and more generally, innovation is putting new ideas into practical use for human development. More specifically, in economic terms, innovation is successful creation, development, and marketing of new products or successful application of new techniques or ways of working that improves the effectiveness of an individual and organization (Archibugi et al., 1994). This definition is in line

with early thinking of the founding father of the concept of innovation–Schumpeter. Schumpeter (1934) defined innovation as launching of a new product, application of new methods, opening new markets and acquiring of new resources. In line with the definition of innovation, four major types of innovation have been identified: product innovation, process innovation, market innovation, and organizational innovation. Innovations can either be identified with small increments or radical change in all the above types. This means that innovation does not necessarily mean launching of a new product, but also modifications of existing products, modifications of ways of marketing the same product to expand market access, although in most cases this is accompanied by product modifications to fit the requirement of different market segments with different characteristics. It also involves changes in the way business is done (new or modified business models) for the same product so as to achieve product performance or wider diffusion.

In the case of financial services, such non-technological innovation is demonstrated by a move from traditional microfinance to DFS, which achieved wider market reach and profitability. DFS further underwent innovation where MNOs reached network agents through alternative distribution channels. Agreements were made with end retailers with substantial distribution networks to act as digital financial service agents, especially in rural areas (Ephraim and Mhina, 2017).

Market innovation and alternative business models have resulted in increase of DFS, which in turn has lowered the cost and helped in increasing the speed, transparency, security, and availability of more tailored financial services that can serve the poor at scale (Pazarbasioglu et al., 2020). It is also through the DFS that Tanzania saw a great innovation in the financial service industry in terms of new firms and new business models such as fintech firms, peer-to-peer lending platforms, online lenders and platforms that focus on a specific network of customers, such as farmers and bigtech firms, including mobile network operators, e-commerce platforms, social media providers, and online search engines, which have all emerged and proved to be useful in increased financial services in the country. Examples of product innovation include Vodacom and CBA's digital savings and credit product called M-Pawa; Jumo and Airtel's digital credit product called Timiza; and FINCA Microfinance Bank and Halotel's digital savings product called HaloYako (Pazarbasioglu et al., 2020).

Within all these, there was also an attempt to address gender gaps in the provision of financial services. Vodacom through Vodacom Tanzania Foundation, for instance, has deliberately focused on women to achieve financial services inclusion. They have positively impacted 2,513 women cooperative group members across the country, with training in mobile financial management. Other initiatives made by Vodacom include "Chomoka App', which is a smart phone supported tool that offers savings groups and women a low-risk entry point to the digital economy by tracking their finances, increase record keeping transparency, build a credit history and transition from informal to formal financial inclusion. The other initiative made by Vodacom Tanzania is "Smart Kitochi", which is the KaiOS powered smart feature phone with

apps such as WhatsApp, google, Facebook, Youtube, etc., which is a key step in connecting those who remain disconnected from mobile Internet. The phone is sold at TZS 48,000, which is 50% less of the original price.

Forces that trigger and drive innovation

Given the value attached to innovation, the factors that trigger innovation in different areas of human life became the subject of a major inquiry. In the specific case of this work, understanding the drivers of innovation, including innovation in digital financial services, is of paramount importance to trigger innovation in favour of the underserved and the poor.

The history of the studies of what actually triggers innovation is long in terms of time and amount. Two major competing linear approaches can be highlighted in the literature as the beginning: the Schumpeterian technological push where scientific discoveries take an upper hand, and the alternative Schmookler's demand pull approach that understands innovation as stimulated by market demand rather than by scientific discoveries.

According to the technology push model, innovations are triggered by basic research in science, resulting into a widespread marketing of new products and adoption of new processes (Coombs et al., 1987; Rosenberg, 1982). The supply of new products and related processes leads to demand, which is assumed to be created after a new product has successfully been produced. The demand-pull model emphasizes the dynamics of market demand as the driving force for the creation and marketing of new products (Schmookler, 1966). According to this model, the changing market conditions and potentials drive innovative activities to the most profitable areas. However, for this to happen, supply response to changing demand conditions requires adequate capacity for science and technology, suggesting that neither of the two models by itself can be associated with the successful triggering and facilitation of widespread adoption of innovations. In support of this conclusion, Rosenberg (1982: 234), made the following point:

Both the underlying evolving knowledge base in science and technology, as well as the structure of the market demand, play a central role in innovation in an interactive fashion, and neglect of either is bound to lead to a faulty conclusion and policies.

Such interactive thinking between the original technology push and market pull modes of innovation is what led to the current concept of innovation systems, where – through empirical evidence – a number of other actors were added to the interaction between demand and supply sides. The major actors in the innovation system include innovators (at the centre of the innovation system), knowledge organizations such as universities and research organizations, input suppliers, markets and other intermediaries, competitors (where innovators learn from what their competitors in the same industry), financial organizations such as the venture

capital, angel investors, etc and policies and regulations (see for instance, Lundvall, 1992; Edquist, 1997 for further explanation on the innovation system actors). An innovation system is, therefore, conceptualized as a network of firms and other agents who, together with policies and regulations that influence their innovative behaviour and performance, bring new products, new processes and new forms of organizations into use by the wide categories of consumers and users (see for instance Lundvall, 1992; Carlsson and Stankiewicz, 1991; Galli and Teubal, 1997; Edquist, 1997, among many others).

While recently the major focus for the analysis of innovation is on the system as described above, the consideration of earlier linear models within the systems of innovation is still very much important, especially for the poor countries where markets for the new products are very much still under-developed. In line with the subject of our inquiry therefore, we give the market (demand/needs) for the underserved at the centre stage in our work rather than the work of innovators as in the normal systems of innovation. This is in line with Schmookler's argument (as indicated in Torok et al., 2019) when he argues that market pull is still very important even within the systems of innovation approach because without requests from users/identification of needs of potential users, no problem to solve through innovation would exist, and thereby no innovation would happen. Likewise, without putting the needs of the underserved at the centre of the innovation system analysis, no innovation that is good for them can come by.

Innovation systems and digital ecosystems defined and compared

USAID's Digital Strategy explains that a digital ecosystem comprises stakeholders, systems, and an enabling environment that, together, empowers people and communities to use digital technologies to access services, engage with each other, and pursue economic opportunities (Volta, 2021). In comparison, the International Telecommunication Union (ITU) understands DFS ecosystem as consisting of users (consumers, businesses, government agencies and non-profit groups) who have needs for digital and interoperable financial products and services; the providers (banks, other licensed financial institutions, and non-banks) who supply those products and services through digital means; the financial, technical, and other infrastructure that make them possible; and the governmental policies, laws and regulations that enable them to be delivered in an accessible, affordable, and safe manner (ITU-T, 2016).

As described above, many scholars define innovation system as a network of firms and other agents, who together with policies and regulations that influence their innovative behavior and performance bring new products, new processes and new forms of organizations into use by the wide categories of consumers and users. Innovation is context specific – it largely depends on the social and economic environment of a given context. For instance, the capability to innovate, the way the actors in the innovation system interact, and their relative importance, is different between different countries, e.g., between rich and poor countries (Edquist, 1997).

While there is a very close relationship between DFS ecosystems and innovation systems in their definition, it is worth noting that the context base, including a need for technology adaptation to context is not reflected in the concept of DFS ecosystem. We believe that DFS ecosystem, including its innovations, for rich countries cannot be the same as those in poor countries. As already discussed in this work, this fact is behind the initiation of the MM4P programme. Similarly, DFS ecosystem and its innovations for the underserved cannot be the same as the one for the well to do communities within the same country. Cornelli (2021) confirms this thinking when he argued that DFS ecosystems are diverse in nature, and that such diversity can be explained by factors such as the regulatory quality, depth of the financial markets and the innovation capacities of different countries.

Lack of context specificity in the current understanding of the DFS ecosystem must have led to the flaws in the current design of DFS policies and regulatory framework in poor countries, where financial products and their delivery modes largely mimic the practice in rich countries which, because of difference in social and economic contexts, failed to work. In this regard, it is important to emphasize that innovation especially for the poor cannot be left to the play of the market; government hand in terms of policies and regulatory frameworks is always a necessary part for a well-functioning system. There are three essential elements in the system of innovation, which are: the actors, their interactive learning, and institutions (including policies and regulations) (Agwu, et al. 2008; Francis, 2006). The three elements and their functions are described below:

i) The actors (organizations and individuals) are involved in generating, diffusing, adapting and using knowledge. These actors include producers, their suppliers, users, and competitors, higher learning institutions, R&D organizations, and financial institutions (Nelson, 1993; Lundval, 1992; Edquist, 1997; Gu, 1999).

ii) The interactive learning that occurs when organizations engage with themselves in generating, diffusing, adapting and using new knowledge and the way in which it leads to innovation in the form of new products, processes, services, new organizational forms and new marketing strategies.

iii) The Institutions such as policies, rules, norms, conventions, regulations and traditions that govern how this interaction occurs.

As already discussed, and as indicated above, the concept of innovation system is much more elaborate compared to the concept of DFS ecosystem. Most importantly, the concept of innovation system includes the possibility of learning among system actors as they together adapt products and processes to their social and economic environment. In other words, peoples' changing demands and needs continuously attract talent, enable creativity and encourage disruptive thinking to bring forth innovation in the form of new/improved products and processes, new marketing

strategies and new organizational forms. This way, and guided through regulatory frameworks and incentives' structure, the system can be attuned to the needs of the poor.

When the system is influenced through policies to innovate in the interest of the poor, we call it an inclusive innovation system. According to Heeks and Foster (2013), inclusive innovation is the means by which new goods and services are developed for and/or by those who have been excluded from the development mainstream, particularly the billions living on lowest incomes. In line with this, USAID (2014) defines market system for the poor as that process which catalyzes the market system to effectively innovate, upgrade and add value to products that match market demand and maintain or grow market share in an inclusive way and delivers a sustainable flow of benefits to a range of actors, including the poor and otherwise marginalized.

Heeks and Foster (2013) identified three levels of inclusiveness of innovation as follows:

i) **Level 1/Intention:** an innovation is inclusive if the intention of that innovation is to address the needs or wants or problems of the excluded group.

ii) **Level 2/Consumption:** an innovation is inclusive if it is adopted and used by the excluded group.

iii) **Level 3/Impact:** an innovation is inclusive if it has a positive impact on the livelihoods of the excluded group.

iv) **Level 4/Process:** an innovation is inclusive if the excluded group is involved in the development of the innovation.

v) **Level 5/Structure:** an innovation is inclusive if it is created within a structure that is itself inclusive.

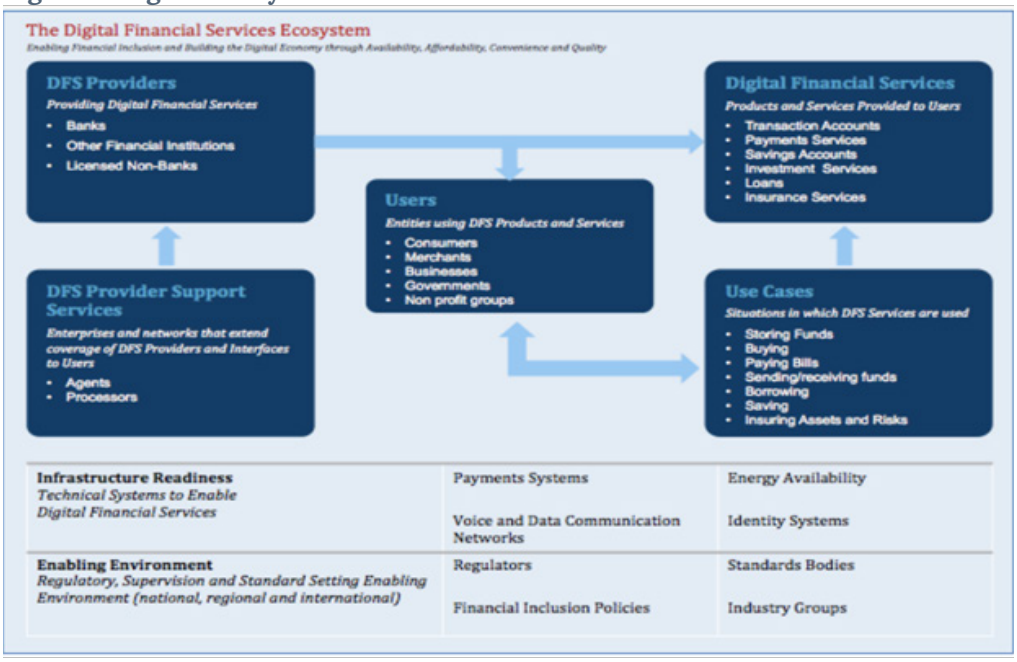
vi) **Level 6/Post-structure:** an innovation is inclusive if it is created within a frame of knowledge and discourse that is itself inclusive.

In short, innovation is inclusive if its development and its system actors are focused on the normally underserved, the discourse and processes are inclusive of the underserved, and it must be used by, and have positive impact on the lives of the normally underserved.

As earlier discussed, innovation and its system are context-based, and therefore an inclusive innovation requires an inclusive system operating in the social and economic context of the target group.

As currently understood and operates, the DFS ecosystem is as shown in Figure 1 below.

Figure 1: Digital ecosystem for financial services



Source: ITU-T (2016: 2)

As indicated in Figure 1, the system consists of all the important actors that are normally present in any innovation system, only that these are more specific to the digital financial services. As can be seen from the figure, the users (market) have rightly been placed at the centre but, to be innovative and inclusive, conscious effort should be put on the special needs of the underserved within the broader realm of users. From these perspectives and from what is indicated in Figure 1, the exclusion can happen through the following channels, which informed the objectives and research questions for the study as indicated in section 2:

i) The providers not able to reach all sectors of the society, including the poorest because of weak linkages between the providers and users, e.g., in terms of inappropriate marketing strategies/inadequate relevant intermediaries (actors).

ii) The current financial services products not appropriate to the underserved, first because of lack of linkage and interactive learning (co-creation) between the producers and users (the underserved), and second, due to inadequate skills and knowledge on the part of the innovators.

iii) Inadequate infrastructure (Internet, electricity, gadgets such as mobile phones and interoperability).

iv) Weaknesses in strategies, policies and regulatory environments, partly emanating from the wrong conceptualization of the framework for inclusiveness.

Likewise, Heeks and Foster (2013) identified the challenges around achievement of inclusive innovation to include the following:

i) Legal/Policy: absence of policy support.

ii) Institutional: lack of collaborative structures and organizations to support inclusive innovation.

iii) Human: lack of skills and knowledge necessary for inclusive innovation.

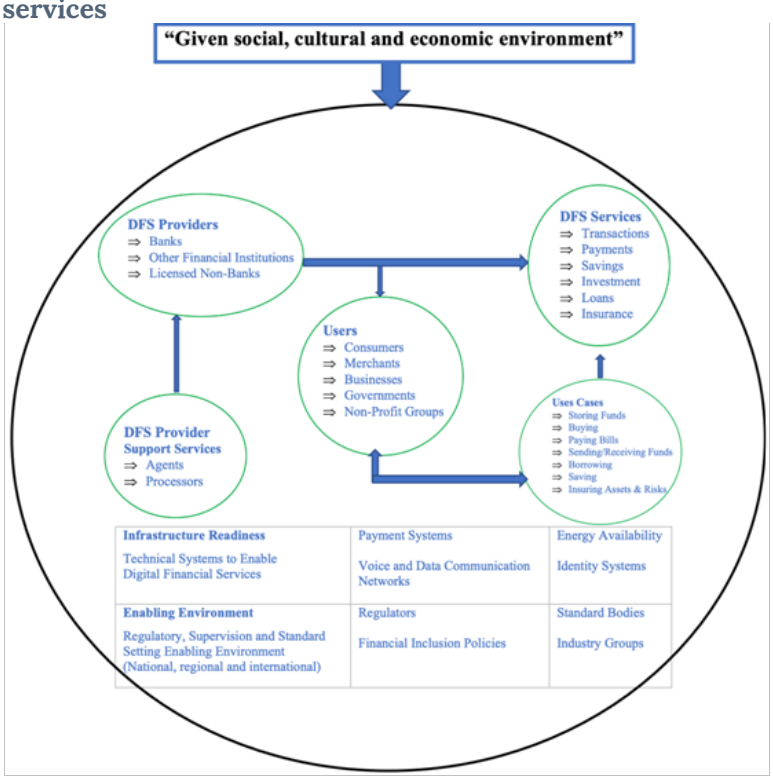
iv) Financial: poor access to capital.

v) Technological: poor ICT connectivity and bandwidth.

vi) Drivers/Demand: lack of need to address excluded groups and/or lack of information about demand for innovations among these groups.

The system as depicted in Figure 1 above can only be adapted to the needs of the poor if it becomes innovative; that is, to continuously adjust to accommodate the needs of the users, including the underserved in line with the changing social and economic context. Most importantly, to appropriately operationalize the system in the interest of the underserved, consideration of the social and economic context is absolutely necessary. Along with this thinking, therefore, the pictorial representation of the inclusive digital innovation systems is as indicated in Figure 2 below:

Figure 2: Inclusive and context-based digital innovation ecosystem for financial services



Finally, innovation, whether inclusive or otherwise, is a multi-actor endeavor, and therefore system focus is of paramount importance to address the underserved. What we therefore mean by focus on the market (needs of the underserved) is that, for all other system actors and their activities and interactions, preference is given to the needs of the underserved rather than those of the innovators; that is, the activities and how actors are linked to each other should be seen from the perspectives of the needs and demands of the underserved. Such context-based differences in the innovation systems are normally reflected in the features of the system elements, including the nature of innovation, the actors involved and their interactive learning, the type of learning they undertake and the institutional (policy and regulatory) environment in which they operate.

The above makes inclusive innovation system to be slightly different from the normal innovation system that puts an innovator at the centre stage.

3. Methodological approach to the study

Study design

The study used both secondary and primary data sources. Primary information is supplemented with secondary information to corroborate and establish facts. Primary data was collected around an established sample size and selected opinion leaders from all the important system actors, both from the supply- and demand-side, and the policy makers. Two sites were purposively selected for the primary data collection–an urban setting and rural setting–to understand the challenges of both urban underserved and the rural underserved. These were further disaggregated in terms of gender to understand the gender dimension in the two sites. For policy, an ex-ante policy analysis was carried out and gaps supplemented with interview of policy makers. An in-depth ex-ante policy analysis was necessary to understand flaws emanating from policy design. Policies, even if implemented, if were wrongly designed, will not only have no impact, but will most likely make things worse.

Sample size and sampling procedure

One city neighborhood and one rural village were purposively selected; the selection of the research sites and sample depended on suitability, but also on the cost given the small amount of resources available for this study. For the urban, one neighborhood with lowest income in Dar es Salaam was selected, and the focus was on the normally underserved groups such as the drivers (tax, daladala and bajaji), street sellers (machinga), street food and beverage sellers (mama lishe), and restaurant and bar attendants. 30 men and 30 women were randomly selected from their work sites, totaling to 60 interviewees.

In the rural areas, the target was the region that is not very far from Dar es Salaam, to reduce cost, but selected a village that is very remote, away from the main road. Within the village, 30 households were selected for interviews and one grown up man and woman were interviewed, making 60 interviewees in total.

In addition to the targeted beneficiaries, the interview was carried out for all other actors in the digital innovation ecosystem, including policy makers and service providers, basically focusing on how they understand and cater for the needs of the underserved, and what challenges they faced.

Instruments for Primary Data Collection and Analysis Techniques

Both the structured and semi-structured questionnaire and interview guide were used to gather information. For the demand-side (users of financial products), both the structured and semi-structured questionnaire were used. For the providers and policy makers, given the sample size, only the semi-structured interview was used. For the opinion leaders representing the users, interview guide was used. For analysis, both the quantitative and qualitative tools were used, e.g., in ex-ante policy analysis and content analysis for qualitative information.

4. Findings

The findings are reported following the objectives of the project as follows:

Inappropriate marketing strategies/inadequate relevant intermediaries

Through the primary data, we find that of the 60 interviewees from the urban areas, which includes drivers of motor cars, tricycles and motorcycles, street sellers commonly known as machinga, food and beverage sellers - also known as mama lishe, and attendants from bars and restaurants, only 12 people (20%) have knowledge of availability of digital financial products in the country. The situation is worse for the rural areas where, out of 60 interviewees, only 5 (8%) have any information on DFS products.

When prompted for the knowledge on some specific products, the findings indicate that only 22 interviewees (37%) in urban and 16 interviewees (26%) in rural areas have awareness of the presence of some of the digital platforms such as M-Pawa, Songesha for Vodacom, Timiza for Airtel and Tigo Nivushe for Tigo.

Some of the least known apps are those related to lending. For instance, despite the mobile platforms offered by the telecommunication companies in collaboration with financial institutions, many of the available mobile lending apps are little known to potential users. Such apps include those owned by Branch International, Umoja Loan, Premier Cash, Mkopo Halisi, Mshiko App, Nufaika Loans, L-Pesa by L-Pesa Microfinance, Singularity Microfinance Limited owning (MkopoWako, PesaX and CashX), and so many others. For instance, only 8 (13%) of the interviewees in urban areas were having knowledge of these apps while in the rural areas, none of the interviewees were knowledgeable of these apps.

The low level of knowledge of the available digital financial services products might have stemmed from inappropriate marketing strategies used by the DFS. Some of these strategies include using digital marketing, i.e., social digital platforms such as Facebook and Instagram, which in order to have access one needs to own a smartphone.

In an attempt to get views of the users in terms of the appropriateness of the marketing and promotional strategies, the study findings indicate different views of the users in terms of level of agreement, with 1 - Strongly Agree, 2 - Moderately Agree, 3 - Strongly Disagree, as indicated in Table 1.

Table 1: Level of agreement with the views regarding DFS providers in promotional strategy

Extent of appropriateness of the DFS campaigns for the underserved		1	2	3
Very appropriate:	Urban	14 (23%)	19 (32%)	27 (45%)
	Rural	13 (22%)	17 (28%)	30 (50%)
Just appropriate:	Urban	16 (27%)	18 (30%)	26 (43%)
	Rural	16 (27%)	20 (33%)	24 (40%)
Somehow appropriate:	Urban	22 (36%)	19 (32%)	19 (32%)
	Rural	18 (30%)	19 (32%)	23 (38%)
Not appropriate at all:	Urban	27 (45%)	17 (28%)	16 (27%)
	Rural	36 (60%)	15 (25%)	9 (15%)

As indicated in the table above, most of the interviewees strongly agree that the marketing strategies being used by the DFS providers are inappropriate.

Such inappropriate promotional strategies result into lower usage of financial services by the poor. Otherwise, appropriate marketing and information sharing strategies lead to increased use as demonstrated by the case of "HaloYako", which is a digitally enabled savings service in Tanzania targeted to the youth, and offered by Halotel in partnership with FINCA, Microfinance Bank, and supported in part by Mercy Corps Agrifin Accelerate, a partner of the Mastercard Foundation. It was youths themselves that were hired to deliver the message about the product to their fellow youths. When youth saw their peers talk about the product, it motivated them to register, leading to the success of the product in the market.

For those few who have information on the existence of digital financial products, knowledge on how to use the products is lacking because extremely few in the sample received any form of training. The few that were trained in both rural and urban areas were trained through face-to-face seminars. Other training delivery channels such as online training was not in use. However, given the rise of digital transformation, this needs to be initiated, especially online training, self-paced programmes and phone training. This is important to reach out to a good number of people at low cost.

Some of the interviewees said that they got to understand the process during their business. One major problem related to learning by doing, especially in rural areas, is that customers share their passwords and pin codes when performing transactions while seeking assistance from other people. But this has not always been useful as some unfaithful people have used this opportunity to steal from those they offered to assist. This means that while the technology is being advanced with the aim of making processes easier and increasing financial inclusion, it also has the repercussion of affecting the proper utilization, especially by the poor.

It appears such challenges in providing services affects people in rural areas more than those in urban areas. According to existing information (secondary source of information), many promotional and marketing programmes administered by

financial institutions are based in urban areas; the rural areas with most people are always forgotten when it comes to information and knowledge about the DFS (World Bank, 2020). There are few providers reaching out to the poor in rural areas, especially in the provision of gadgets such as smartphones, tablets, POS machines, etc. The high cost of reaching out to the poor and the efforts to minimize the cost through innovation is being frustrated by inappropriate regulatory frameworks. One of the interviewed Fintech owners complained that it is very difficult to come up with a new product or system because before you are allowed to try the product in the market, you will be asked, "has it worked elsewhere in the world?" If your answer is no, then that becomes the end of your efforts. This was also stated by members from the fintech companies who participated during the stakeholder's dissemination workshop. They explained that there is a financial challenge to come up with a new product and test the product in the market. These challenges, to a large extent, could have been contributed by improper DFS framework for the poor that does not take into account particularity of context and need for innovativeness.

Another challenge around proper marketing strategies and training in the use of the digital financial services might have been caused by the general financial literacy levels of the targeted communities. With low literacy level, and especially in numeracy, any marketing strategy is unlikely to succeed. A study by Intermedia in Tanzania found that, across all demographic groups, financial literacy of the adult population was very low – it is about 16% and 18% in rural and urban areas, respectively. Literacy on mobile money services is equally low, about 17% of the adult population (Njeru and Muruka, 2018).

Inappropriate financial services products to the undeserved

In Tanzania, the cost of accessing digital financial services has increased more than ever because of the high charges imposed by the government. The controversial levy imposed in 2021 was strongly criticized, with industry experts warning that it was placing a heavy burden on the impoverished populace and hurting financial inclusion in the country's fast-growing digital industry. Despite the amendment made in 2022 to reduce the levy on mobile money transactions introduced a year before by 43%, citizens remain unhappy about the situation. Others shifted back to bank transactions; this seemed to be a relief until again the government-imposed levies on bank transactions ((Ndung'u, 2019). Taxes and other charges on DFS products and services also reduce the incentive to innovate (UNDF, 2021), which means there is no way the provider can innovate in favor of those who are normally excluded. The argument here is not to tax at all, but rather that tax rates/levies be made reasonable so that it does not deter innovations and distort markets.

The current study confirms such cost-associated challenges. Of the 52 (43%) respondents (both rural and urban) who were aware of the services, only 14

respondents (27%) said the cost of services is reasonable.

The issue of cost appropriateness is worse for women. In most communities, women are limited or not allowed to own or inherit assets, including land, which leads to continued disempowerment of women. Women's lack of ownership of assets, which they can use as collateral, has been the major stumbling block to financial inclusion of women (Fletschner and Kenney, 2011; Deere et al., 2013).

Another issue with appropriateness concerns technology itself. During the field work when the interviews were asked about the challenges encountered in the course of using the money lending apps, they complained about the apps not being effective (about 67 interviewees out of 120 interviewed). This is especially true in the repayment process. One of the respondents lamented that you could make payment but it takes time for the payment to be reflected in the system. This is a problem because the lending companies will keep on disturbing the client through calls to remind them of the need for payments which, at times, has already been effected.

Other interviewees complained of the tedious process during loan application. At times, the app can indicate that the requested amount is wrong but does not give an option to edit or seek for help. Another big challenge is for the apps not to provide the breakdown of the loan in terms of repayment schedule, interest rate, etc. Sometimes the repayment period forces to be one week (7 days) instead of a month. At times the charges appear to be too high; in this regard, one interviewee complained to have paid an interest of TZS 69,840.59 for a loan of TZS 291,000 within a period of one week, and for 14 days, the interest became TZS 104,758 from Mshiko Loan, which is an app owned by Broadband Credit Limited. This means 24% interest in a week and 36% in a period of 14 days, which is even beyond the standard set by the regulator. In addition, when the payment is overdue, the charges amount to 3.5% – 4.0% on daily basis.

Under Premier Cash, if one request a loan of TZS 264,000, one will have to repay TZS 377,519.20 if repayment is within 28 days, meaning that the interest rate is 42% of the loan. If it is 21 days for a loan of TZS 198,000, one will have to repay TZS 279,179.73, indicating an interest of 41%. Interviewees lamented that these interest rates are too high to be accessible by the poor.

Another dimension of appropriateness comes from the complexity of the product or systems. In one of the bars whose attendants were interviewed, it was observed that despite having installed the bar management system, which includes the computer, thermal printer, and the POS machine, the service has not been used for a period of two months from the time it was installed. This is because of the inventory system being too complicated to the extent that despite the training provided, bar attendants have not been able to use it. There were also complains about the service provider requiring additional payments to provide post-sale support. This has forced the bar management to decide to look for another provider to install the service that is user-friendly. According to the interviewees, most of the DFS products do not serve the purpose, since the specifications do not meet the users' demands/requirements.

The above challenges are from the fact that most of the DFS products available for use in the market are generic or picked from other countries with technologies

or conditions not suitable for the Tanzanian environment, especially for the poor and the underserved. This was confirmed by one of the microfinance institutions using the information system developed and purchased from India. While using the system to register customer details, it asks to fill information that is relevant for India rather than Tanzania. For these systems to be effective they need to be adapted to the users' context, which must be understood prior to the adaptation. At the centre of the inclusive innovation system must be the targeted group (the underserved).

More generally, as a country, there is no/little initiative to invent things that are appropriate to the context. For instance, there are no proper incentives for investing in innovative activities such as investments in research and development and, generally, policies and regulations to strengthen the innovation ecosystem are grossly lacking. The country does not provide support for locals to invest in new technologies and to be innovative. As earlier reported, an attempt to come up with a new product normally meets an insurmountable stumbling block of "unless it has worked elsewhere". In such circumstances, there will never be innovation that is "first to the world" in Tanzania despite the fact that this is the level of novelty that every country in the world is striving for.

Inadequate infrastructure

Digital infrastructure is one of the very important aspects in the financial inclusion process. For DFS products and procedures to operate smoothly in the market, there is need for a good digital infrastructure system. Such infrastructure that supports the operations include availability of electricity, mobile network coverage, and the availability of digital gadgets. In addition to this infrastructure being in place, there also must be consideration of affordable services both in terms of electricity, DFS electronic gadgets such as smartphones, tablets, and POS. Subscriptions into DFS services must also be cost-effective and easily available. The National ICT Broad Band Backbone (NICTBB) has to be made available and easily accessible to greatly impact the digital finance ecosystem.

In relation to the above, while in Tanzania, availability of infrastructure is not a major problem, its cost is. From the findings of our research, 56 out of the 60 interviewees (93%) in urban areas claimed that Internet bundles are very expensive. In the rural areas, 60 out of 60 interviewed (100%) claimed the same. This is a national concern: why is the Internet service that expensive in the presence of a National ICT Broadband Backbone? High taxes could be the reason for high cost of bundles because the interviewees also complained of high taxes imposed by the government. In addition to the cost, there was also complains on the efficiency and performance of the Internet. When DFS providers were approached to give their views and comments regarding the quality of services provided to users, they confirmed to receive complaints from customers/users about the quality of services, especially in relation to prices, Internet speed, etc. For the regulators and policy makers, the

response is that they have ongoing initiatives to link-up and discuss issues that need to be resolved with the providers.

One thing that would have helped in addressing the above challenges is Credit Reference Bureaus (CRBs) as they provide intelligent information about individuals for them to receive credit and for lenders to avoid defaults. Through CRBs, one can access a credit report in less than 24 hours. The process is easy, familiar and takes a short time to verify and approve just by a few clicks on the phone. However, in Tanzania, there are only two CRBs: CreditInfo and Dun and Bradstreet (D&B) (Nkoma, 2017). The advantage of having more CRBs includes competition between themselves, hence lowering the cost to access the services. Currently, not all DFS providers are able to access services offered by the CRBs. This is because of the high costs per credit report imposed when one wants to access services from the CRBs. It is only institutions with financial muscle and big number of clients that manage to use the service. This is because the charges imposed on financial institutions become less if the number of users is big. The price is being categorized based on the volumes the microfinance or savings and credit organization has. All in all, the price does not exceed US$ 1 per user when requesting the credit profile. Many of the microfinances, SACCOs and other DFS providers do not have access to CRBs. This in turn could generate non-performing loans (NPLs). Having a suitable environment for DFS providers alone is not a guarantee to increase financial services in the country, but rather a synergy between players in DFS ecosystem and being innovative to master the technological advancement in the market. During interviews with CRBs, it was clearly stated that a fintech company could integrate its system with the CRBs, but there must be a special arrangement between the CRB and the microfinance institution or SACCO that is seeking the system from the fintech. This is because CRBs consider the microfinances and SACCOs as the risk owners, since they will ultimately be accountable for ensuring the risk is managed appropriately when it happens and not the fintech providers. Another issue here is on the payment methodology when the CRB service is needed, since payments are done per single credit report. This complicates the entire ecosystem and makes the charges to be high.

One important infrastructural issue as mentioned above is electronic gadgets, such as mobile phones. In this regard, Tanzania has made tremendous progress in mobile phone infrastructure and growing competition in the telecommunication industry through telecommunication companies. The country has raised mobile tele-density from 13.1 subscribers per 100 people in 2008 to 82.2 in 2019 (World Bank, 2020). This initiative has not only created a platform for digital revolution in finance, but also set an environment for introduction and growth of digital based services in health, education, public administration, judicial and market information (Macha, 2021).

In terms of gender aspect of the infrastructure, one of the major challenges is the e-payment platforms that are not gender responsive, i.e., there is no simplified, low-cost accounts to reduce women's barriers to accessing payments and increase bank account ownership among women (Mwighusa et al., 2022). The requirements for official documents such as birth and marriage certificates when one wants to

open bank accounts is a challenge because many people, especially the elderly, do not have such certificates.

The case of long distance from where the mobile money agents are doing businesses to the banks, especially in the rural areas and other financial institutions is also causing a problem for the good services to be offered; it is very discouraging to travel or walk a long distance with cash in hand. The other challenge is inadequate provision of agent banking in remote, rural areas. Agent infrastructure is normally located where there is adequate population density, leaving many of the most isolated communities without access to the agent network.

Another problem with systems in Tanzania is that in order to own a bank account or have a SIM card registered so as to be able to access digital financial services, one must be registered and own a National Identity Card (NIDA). Before processing the ID card, one must have some other documents such as birth certificate for oneself and for the parents (father) and, if not, the affidavit needs to be processed. This is one of the biggest challenges especially in rural areas since most of the people do not have the habit of processing birth certificates for the kids at birth. Birth certificates are also largely not available for the older generation. Banks and financial institutions that have integrated their systems with the National Identification Authority (NIDA) revealed to have performed better in increasing customer base, savings, and building customers' credit scores. This development is, however, constrained by conditions and costs on interfacing with the National ID system (Macha, 2021). The cost is considered high, especially for financial institutions with huge numbers of daily enquiries since one has to pay for every inquiry being made. The case is different for other markets (such as Kenya), whereby the interface to the national population registry is free. NIDA is one of the financial inclusion enablers in both the National Financial Inclusion Framework of 2014-2016 and the follow-up one of 2018-2022. A lot of initiatives have been made to enable people secure national ID cards, but but much more needs to be done.

Full integration of the National ID systems, CRBs, banking and other financial and non-financial institutions should not only facilitate development of credit scores for extending credit to entrepreneurs in informal sector, but also build savings and repayment culture by customers.

Another infrastructural issue is interoperability. Interoperability improves convenience for users, enhances efficiencies by enabling sharing of different transaction channels such as ATMs, merchant POS terminals, and agents. It promotes competition among DFS providers (Pazarbasioglu et al., 2020). With the absence of interoperability, there will be no improvement in getting more DFS providers. Usage of digital payments will also be inefficient. This is because businesses will have to maintain more than one account, and decide which one to use (M-Pesa, TigoPesa, Airtel Money, etc.) when performing a transaction. During transactions, one will have to transact through a network that is exactly the same for the account. But with interoperability, the transaction can be made using only one account cutting across all networks. This is the same case with banking transactions; one does not need to

have multiple bank accounts, only one bank account is enough to transact with other banks. All said, the problem of interoperability has to a large extent been addressed, and the country BOT, in collaboration with the Ministry of Finance and Planning, demanded interoperability among digital financial services providers since 2014 and has established a payment platform known as Tanzania Instance Payment System (TIPS). This multilateral interoperability system aims to enable real time payment exchange between different digital finance service providers, specifically between e-money issuers, between banks, banks and mobile money operators (MMOs) and between MMOs. Piloting started with some of the mobile network operators and financial institutions; i.e., banks (Macha, 2021). This is the best approach compared to the former, which involved commercial banks and e-money issuers achieving interoperability through several bilateral arrangements. Some of the TIPS' objectives include promotion of interoperability among all DFS providers, increasing efficiency in retail payment systems, promoting usage of electronic retail payments on a system-wide level, and enhancement of oversight capabilities.

However, this interoperability model (i.e., TIPS) has several challenges, which include liquidity management for financial services providers, operational inefficiencies and management but also limited scalability in adding use cases. TIPS also limits transactions to TZS 10 million per day.

Other initiatives made in electronic payment systems include those made by institutions. Big banks such as National Microfinance Bank (NMB) and Central Rural Development Bank (CRDB) had previously developed their own gateways or aggregating platforms for e-banking services. Small banks and microfinances rely on private aggregators such as Selcom and Maxmalipo. The gateways have so far facilitated cashless payments through Point of Sales (POS), QR codes and other e-commerce solutions that enable merchants to accept credit/debit cards. Aggregators are licensed by the Bank of Tanzania and operate as per the provisions of the National Payment Systems Act, 2015 and its related regulations, mainly the Payment Systems.

In conclusion, despite challenges of cost, infrastructure in Tanzania is quite adequate for DFS.

Relevant policies for digital financial inclusion in Tanzania

There are number of public policies in Tanzania that are relevant to financial inclusion, including the National Information and Communication Technology Policy (NICTP) of 2016, with a major objective to enhance human capital in information and communication technology (ICT), access and availability of affordable broadband services and establishing reliable, interoperable, and sustainable ICT infrastructure; the National Microfinance Policy with a major objective to promote microfinance services and associated innovations for stable financial system and broad-based financial services; the five year development plan (2021/22-2025/26) that, among others, aims to promote innovation and application of ICT for citizens to benefit from digital revolution, including digital-based services in finance, education, public administration and market information; Financial Sector Development Master Plan 2020/21-2029/30, which aims at creating a stable, sound, efficient and inclusive financial sector; and the National Financial Inclusion Framework, 2018-2022, which builds on the first Framework (NFIF1), which was implemented over a period of three years from 2014 to 2016.

The 2014-2016 frameworks had a major objective to galvanize all relevant stakeholders in financial services under one common vision of success and provides strategic direction for all initiatives for financial inclusion in the country. The document explains the working definition of financial inclusion to entail the regular use of financial services, through payment infrastructure to manage cash flows and mitigate shocks, which are delivered by formal providers through a range of appropriate services with dignity and fairness. The framework explains the following as indicators of inclusion and achievement targets by 2016: achieving 50% formal access, 50% formal usage, 25% of adult population with two weeks' worth of income in formal savings, and 25% of adult population with electronic information records on personal profile, collateral and credit history by 2016.

While all the above policy frameworks are relevant to the issues of digital financial inclusion, the National Financial Inclusion Framework is directly relevant for our work, specifically on inclusion. It is, therefore, this policy that we scrutinized in detail in ex-ante analysis that we carried out. The major objective was to see whether the policies were properly designed to have likely impact in addressing the exclusion issue and to identify gaps that can be filled in the subsequent policy reviews.

Outcome of ex-ante policy analysis: 2014-2016 and 2018-2022 national financial inclusion frameworks

Ex-ante policy evaluation is evaluation of the likelihood that the policy will address the problem that it was originally promulgated for. It is an important step in proper ex-post policy monitoring and evaluation because it addresses the gaps at the planning stage. Some governments put ex-ante policy evaluation as a mandatory exercise before the policy is implemented. One such government jurisdiction is the European Union.

According to the EU (2014), the ex-ante evaluation is intended to help ensure that what is proposed in the programme and or policy makes sense, is logical and justified, and that the proposed priorities, objectives, measures and allocations of resources are appropriate to respond to the needs/problem identified. More specifically according to this document, the ex-ante evaluation ensures the following:

i) Needs have been diagnosed correctly;

ii) The strategy and objectives proposed are relevant to those needs;

iii) The approach proposed is coherent and consistent with community policies and guidelines; and

iv) The assumptions concerning expected results and impacts are realistic and in line with the resources available.

In line with experiences of ex-ante evaluation elsewhere and the purpose of this work, we looked at three important things: clear diagnosis of the challenge (needs) of the target group – the underserved, policy objectives, policy strategies and instruments. We will start with the 2014-2016 framework.

2014-2016 framework

Clear diagnosis of the problem and causes

This framework, at least from the title of the blueprint, sets out to address the exclusion problem in the financial services delivery. The first thing here is the understanding of inclusion. We realize that the definition of inclusion is not very clear; it does not make reference to focusing on the normally excluded as it is popularly defined elsewhere. The framework defines inclusion as "regular use of financial services, through payment infrastructures to manage cash flows and mitigate shocks, which are delivered by formal providers through a range of appropriate services with dignity and fairness". In addition, the framework defines indicators of inclusion as just increased coverage of the people in the country, without making reference to the group that is normally excluded (the underserved). It says: inclusion is in terms of achieving 50% formal access, 50% formal usage, 25% of adult population with two weeks' worth of income in formal savings, and 25% of adult population with electronic information records on personal profile, collateral and credit history by 2016. This implies that increased coverage could just mean further coverage of those who are outside the normally underserved, with exclusion of the underserved remaining the same or even increasing.

This is contrary to how other countries approached policy design for financial service inclusion, among these being India. India clearly made reference to the target group when designing her inclusion policy. Their policy document, for instance, defines inclusion as the process of ensuring access to financial services and timely and adequate credit where needed by vulnerable groups such as weaker sections

and low-income groups at an affordable cost. With a view to deepening the financial inclusion interventions in the country, India's policy programme has been extended with the focus on opening of accounts by shifting from "every household" to "every unbanked adult".

Policy objectives

The lack of specific focus to the underserved is further evidenced by the objectives of the framework, which none of it makes reference to special needs of the underserved. The policy identifies the following core enablers that are thought to automatically address the exclusion issues:

(i) Proximity: of financial access points to where people live and transact. Physical proximity is the starting point for encouraging usage of financial services.

(ii) Payment's infrastructure: a key function of money is means of payment. Thus, safer, lower-cost payment infrastructure is core to an efficient financial system.

(iii) Store of value infrastructure: a key function of money is store of value. Therefore, electronic platforms that facilitate secure store of value are an essential part of the financial system.

(iv) Store of information infrastructure: individual and business profiles, credit histories and collateral are a core component of access to financial services. Information asymmetries affect access and provision of financial services.

Without directly tying these core enablers to the situation of the normally underserved, it would be difficult to have impact on them; and indeed, this seems to be the case as we have already indicated in the introduction, while coverage is increasing, exclusion remains the same or even increasing.

Policy strategies and instruments

The framework has identified the following priorities as best ways to improve the above four core enablers of inclusion:

i) **Proximity:** Enhancing and implementing access channels, such as agent banking, mobile telephony financial services, point of sales, stand-alone ATMs, etc. and a regulatory framework that creates a conducive environment.

ii) *Robust electronic platforms:* Improving, developing Information and Communication Technology (ICT) payment platforms that facilitate cost-effective access to financial services.

iii) **Robust information and easy client on-boarding: I**mplementing, monitoring and enhancing use of credit bureaus, proportionate Know Your Client (KYC), improved identification (ID) system that is linked to financial systems and credit bureaus;

and

iv) **Informed customers and consumer protection:** Implementing financial consumer protection mechanism and financial education strategy.

Just like the objectives, the above strategies are also neutral; they do not make reference to particular groups that are normally underserved. For instance, number (i) above that is making reference to proximity need to clearly mention the underserved. Because proximity would mean different things to different people: even if reference is made to the rural areas, where the population is normally sparse, there would be those who can afford transport to the point of service, but there are those who cannot.

Issues with electronic payment platforms are not limited to price only, but also accessibility in terms of simplicity and attractiveness in the design to suit a certain category of people - in this case, the undeserved and the poor. For number (iv), strategies to inform customers and consumer protection should be those that can fit the specialized group of the underserved and the poor. However, all these have not been properly explained in this inclusion strategy, leading to ambiguities and difficulty in properly implementing the policy. Missing also in the policy objectives are incentives for innovation and adaptation of technologies and services to the context of the underserved, including emphasis on interactive linkage and learning among system actors. This oversight – to a large extent – must have emanated from the use of inappropriate conceptual framework for policy design, as discussed in this work.

To conclude, we can safely say that, as long as the policy misses correct definition of the problem it is targeting, correct conceptual framework for its design, even if it is implemented, at best, it will not have impact, and at worst, scarce resources are wasted.

2018-2022 framework

The second National Financial Inclusion Framework builds on the first Framework, maintaining the same vision and objectives. However, unlike the first framework that took inclusion as a general increased coverage in the country, the second framework makes special reference to several groups in the society, which are: households, micro, small and medium enterprises, giving special attention to women.

The framework clearly states that despite some achievements, the level of financial exclusion is still high in the country, standing at 28%, with the majority of those excluded being people living in rural areas, smallholder farmers, youth and women, further confirming our argument that the first policy framework could not have worked because it is not directly targeted to the poor.

According to the second framework, there is also a big gap in the demand and supply of financial services in the market, whereby most of the products offered by FSPs do not meet users' needs. According to the framework, given this gap, the focus of the second framework is on increasing the usage of financial services, as against the first that largely focused on the supply-side issues.

More specifically, the framework identifies the following as gaps that still linger:

(i) Limited availability of products and services that low-income people find relevant and intuitive, mainly caused by lack of innovation among FSPs and/or the ecosystem not providing space for non-traditional players (e.g., FinTechs) to innovate.

(ii) Financial services distribution still under-developed with a fragmented payment ecosystem that cannot offer low transaction costs commensurate with peoples' levels of incomes.

(iii) Lack of a comprehensive financial consumer protection legal framework, especially when most of the people are now being exposed to digital platforms, which may reduce levels of trust in digital models.

(iv) Low level of general literacy and numeracy, leading to high financial incapability among the general population and business owners.

(v) High cost of financial services and products as perceived by consumers.

(vi) Limited analytical capacity and tools for analysis of financial inclusion data to help stakeholders to be better informed about market dynamics that influence their strategies or businesses.

(vii) Lack of a culture to proactively seek and use evidence to support both strategic and operational decisions by policy makers, regulators and financial services providers.

(viii) Lack of mechanisms to generate feedback on user satisfaction from the use of financial services.

Policy strategies to address the above

The framework includes some outcomes that are desired to address the above weaknesses, which include:

(i) All adults have their profiles in the integrated reference system

(ii) All adults have unique and verifiable identification

(iii) All Tanzanian adult's own mobile phone

(iv) Financial access points are closer to where people live

(v) All adults have an activity through their account

(vi) People have financial products and services that are appropriate, affordable and convenient

(vii) The adult population is confident in dealing with financial service providers

(viii) All adults save, borrow, transact and mitigate financial risks

(ix) Financial products and services meet consumers' expectations

While the challenges somehow focus on different sections of the society, especially the underserved, strategies to address them are not targeted, but rather focus on the 100% coverage, which we believe is not possible soon.

Also, one of the major weaknesses that the framework mentioned (iv) is in line with our major argument on the inappropriateness of the conceptual framework used for policy design.

Given the above gaps that are still lingering, even the second policy framework had limited impacts, as evidenced in the findings of the current study.

Current views of the policy makers

Interviews with policy makers indicated that policy makers are generally happy with the progress the country has made towards financial inclusion. According to them, the existence of NFIF 2014-2016 and 2018-2022 has made some impacts, but requires some adjustments for increased impact. They also informed that a new policy is underway and promised to take on board findings of the current study.

5. Conclusions and policy recommendations

Conclusions

While Tanzania has made good progress in the use of digital financial services in comparison to many countries in Africa, the issue of exclusion still lingers. Previous studies and policies have focused on ensuring wider coverage rather than exclusive focus on the underserved and the poor. The studies and policies also used inappropriate conceptual framework of DFS ecosystem that lacks dynamism, innovativeness and context specificity.

The current study used an alternative conceptual framework of inclusive innovation systems that directly focus on the underserved and the poor, putting them at the centre of the innovation system. This way, according to the findings of the study, most of the challenges revolve around issues relating to the appropriateness of the marketing strategies and information packaging and delivery that is appropriate to the poor, appropriateness of the products to the needs of the underserved in terms of cost, complexity and inappropriateness to the social and economic context of the users. The inappropriateness challenge is further exacerbated by the unfriendly environment for innovation.

In terms of infrastructure, while a lot has already been achieved, much needs to be done especially in terms of costs of access to the Internet, emanating from high taxes imposed by the government. In addition to the cost, there were also complaints around the efficiency and performance of the Internet.

In terms of gender aspect of the infrastructure, one of the major challenges is the e-payment platform that is not gender responsive; i.e., there are no simplified, low-cost accounts to reduce women's barriers to accessing payments and increase bank account ownership.

The gaps are despite the existence of policy frameworks that are specifically intended to target exclusion issues mentioned above. Our ex-ante review of these policies indicates that the major problem seems to arise from the design of policies, especially in properly defining and understanding the concept of inclusion and use of inappropriate conceptual framework in policy design. Discussion with policy makers, while arguing that indeed the policy have contributed to the financial inclusion, acknowledged weaknesses that were found in ex-ante policy reviews and promised that the issues raised will be taken on board in preparation of the next framework, which is currently in the process.

Policy recommendations

In terms of policy recommendations, this study provides the following recommendations:

(i) Service providers should either be incentivized or regulated to make sure they constantly communicate with their current and potential clients through appropriate means. They should also be incentivized to provide necessary training through appropriate means.

(ii) In designing policies, appropriate conceptual framework for DFSs should be used; and policies should provide incentives and a conducive environment for the service providers to be innovative.

(iii) Policies should provide room and incentives for DFS products that are designed locally.

(iv) The government could endeavor not only to design appropriate policies, but to make sure the policies are implemented and monitored regularly to learn and immediately address emerging challenges. The government could adopt the notion of policy trials and learning by implementing policies with a limited scope in terms of space and time before they can become national policies for a much longer period.

(v) Policy makers should recognize and adopt regulatory sandboxes as a tool for spurring innovation in the financial sector, while keeping alert on emerging risks. Through sandboxes, regulators can carefully monitor new digital products, services and business models in a live testing environment, enabling firms to bring innovations to market more quickly and readily.

Notes

1. https://vodacom.co.tz/financial.

2. https://vikaspedia.in/social-welfare/financial-inclusion/financial-inclusion-in-india.

3. https://financialservices.gov.in/financial-inclusion-schemes#:~:text=The%20Government%20initiated%20the%20National,unsecured%2C%20funding%20the%20unfunded%20and

References

Adelakun, O.J. 2010. Financial sector development and economic growth in Nigeria. Department of Economics, Joseph Ayo Babalola University, Ikeji Arakeji.

Agwu, A.E, Dimelu, M.U and Madukwe, M.C. 2008. "Innovation systems approach to agricultural development: Policy implication for agricultural extension delivery in Nigeria". *African Journal of Biotechnology,* Vol. 7(11): 1604–1611.

Archibugi, D., Evangelista, R. and Simonetti, R. 1994. "On the definition and measurement of product and process innovation", In Shionoya, Y. and Perlman, M. (eds.), Innovation in Technology Industries and Institutions. Studies in Schumpeterian Perspectives, University of Michigan Press, USA.

Bilan Yu., Rubanov P., Vasylieva T., Lyeonov S. 2019. "The Influence of Industry 4.0 on financial services: Determinants of alternative finance development". *Polish Journal of Management Studies,* Vol. 19(1): 70-93. DOI:10.17512/pjms.2019.19.1.06.

BOT. 2019-2020. Bank of Tanzania Annual Reports 2019-2020. https://www.bot.go.tz/Publications/Regular/Annual%20Report/en/2020123112264444.pdf.

BOT. 2022. Financial technology in Tanzania: Assessment of growth drivers. Bank of Tanzania.

Carlsson, B., Stankiewicz, R. 1991. "On the nature, function, and composition of technological systems". *Journal of Evolutionary Economics*, Vol. 1: 93-118. https://doi.org/10.1007/BF01224915.

Coombs, R., Saviotti, P. and Walsh V. 1987. *Economics and technical change, Macmillan Education Limited.*

Cornelli, G., Doerr, S., Franco, L. and Frost, J. 2021. Funding for fintechs: Patterns and drivers. Available at: https://www.bis.org/publ/qtrpdf/r_qt2109c.htm.

Deere, C.D., Oduro, A.D., Swaminathan, H. and Doss, C. 2013. "Property rights and the gender distribution of wealth in Ecuador, Ghana and India". *The Journal of Economic Inequality*, 11(2): 249-265. Available at: https://link.springer.com/article/10.1007/s10888-013-9241-z.

Edquist, C. 1997. Systems of innovation: Technologies, institutions and organizations. London: Science, Technology and the International Political Economy.

Ephraim, I., Mhina, D. 2017. The story of digital finance in Tanzania. FSDT case study.https://www.fsdt.or.tz/wp-content/uploads/2021/05/FSDT_DFS_CaseStudy.pdf.

EU. 2014. Guidelines for the ex-ante evaluation of 2014-2020 EMFF OPS-untitled (europa.eu).

FinScope Tanzania. 2017. Insights that drive financial inclusion. Dar es Salaam: FinScope Tanzania. Available at: www.fsdt.or.tz/wp-content/uploads/2017/09/FinScope-Tanzania-2017-Insights-that-DriveInnovation.pdf. (Accessed 10 May 2021).

Fletschner, D. and Kenney, L. 2011. Rural women's access to financial services: Credit, savings, and insurance. FAO, Agricultural Development Economics Division. Volume 11, Issue 7 of ESA working paper. Available at: https://books.google.co.tz/books/about/Rural_Women_s_Access_to_Financial_Servic.html?id=62C2vQEACAAJ&redir_esc=y.

Fransis, J. 2006. National Innovation Systems Relevance for Development. Training of Trainers Workshop for ACP Experts on Agricultural Science, Technology and Innovation (ASTI) Systems, 2nd to 3rd October 2006.

Galli, R. and Teubal, M. 1997. "Paradigmatic shifts in national innovation systems", In: Edquist, C. (ed.), *Systems of innovation: Technologies, institutions and organizations*. London: Pinter Publishers.

Gu, S. 1999. Implication of national innovation systems for developing countries: Managing change and complexity in economic development. Discussion Paper Series, UNU/INTECH.

Heeks, R. and Foster, C. 2013. "Conceptualizing inclusive innovation: Modifying systems of innovation frameworks to understand diffusion of new technology to low-income consumers". *European Journal of Development Research,* Vol. 25(3), DOI:10.1057/ejdr.2013.7.

Ibrahim, M. 2007. "The role of the financial sector in economic development: The Malaysian case". *International Review of Economics.* DOI:10.1007/S12232-007-0023-4.

ITU-T Focus Group Digital Financial Services. 2016. The digital financial services ecosystem. The International Telecommunication Union (ITU).https://www.itu.int/en/ITU-T/focusgroups/dfs/Documents/09_2016/FINAL%20ENDORSED%20ITU%20DFS%20Introduction%20Ecosystem%2028%20April%202016_formatted%20AM.pdf.

Lundvall, B.A. (eds). 1992. *National systems of innovation: Towards a theory of innovation and interactive learning.* London: Pinter Publishers.

Macha, D. 2021. Digital financial technology in Tanzania: Assessment of growth drivers. Bank of Tanzania.

Mwighusa, D.N., Daniel, L., Diyamett, B. 2022. Leaving no one behind in digital delivery of public services: The case of online business registration in Tanzania. Southern Voice, Occasional Paper Series No. 77.

Ndungu, N. 2019. Digital technology and state capacity in Kenya. Centre for Global *Development, Policy Paper 154.*

Nelson, R.R. (ed). 1993. *National innovation systems: A comparative analysis*. Oxford: Oxford University Press.

NFIF. 2014-2016). National financial inclusion framework. United Republic of Tanzania.

NFIF. 2018-2022). National financial inclusion framework. United Republic of Tanzania.

Njeru, J. and Muruka, G. 2018. How ecosystem issues fail rural FIs to promote digital financial services: Observations from MFIs in Tanzania. *MicroSave.*

Nkoma, M. 2017. Impact of credit information sharing on loan performance: A case study of commercial banks in Tanzania. Dissertation for Master of Business Administration in Corporate Management of Mzumbe University.

Patrick, H.T. 1966. "Financial development and economic growth in underdeveloped countries". *Economic Development and Cultural Change*, The University of Chicago Press Journals. Vol. 14, No. 2: 174-189. http://dx.doi.org/10.1086/450153.

Pazarbasioglu, C., Mora, A.G., Uttamchandani, M., Natarajan, H., Feyen, E. and Saal, M. 2020. *Digital financial services*. Washington DC: World Bank Group.

Pranathi, D., Nayak, T., Prasanth, S., Gupta, K. 2022. "Role of financial services in economic development: A quantitative investigation". *Journal of Positive School Psychology*, Vol. 6, No. 5: 5865–5873.

Rosenberg, N. 1982. *Inside the black box: Technology and economics.* Cambridge: Cambridge University Press.

Schmookler, J. 1966. *Invention and economic growth*. Cambridge (MA): Harvard University Press.

Schumpeter, J.A. 1934. "The theory of economic development: An inquiry into profits, capital, credit, interest and the business cycle". *Harvard Economic Studies*, Vol. 46.

Sutton, C.N., Jenkins, B. 2007. The role of financial services in expanding economic opportunity. Economic opportunity series. Kennedy School of Government, Harvard University.

Török, A., Tóth, J., Balog, J.M. 2019. "Push or pull? The nature of innovation process in the Hungarian food SMEs". *Journal of Innovation and Knowledge*, 4: 234–239.

UNCDF. 2018. Mid-term evaluation: Mobile money for the poor (MM4P).

UNDF. 2021. 2021 Annual Report. The United Nations Capital Development Fund. Available at: https://www.uncdf.org/.

USAID. 2014. A framework for inclusive market system development. *LEO Brief.*

Volta, W. 2021. New USAID digital ecosystem framework for international development. ICT works. https://www.ictworks.org/usaid-digital-ecosystem-framework/#.Yl6dJChBzIV.

World Bank. 2018. Financial Inclusion overview (website). Available on https://bit.ly/3iv1zoW.

World Bank. 2020. Retrieved from https://pubdocs.worldbank.org.

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